



Work Area: STW
Work Type: QTY
Originator Company: BFK

C435 Farringdon Main Station

CRL Lead reviewer: SS
CRL Reviewer: FEs

Readiness Review and Certification Packages Procedure

CRL Document Number: C435-BFK-O4-GPS-M123-50001

Contract MDL reference: C06.003

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This document has been reviewed by the following individual for coordination, compliance, integration and acceptance and is acceptable for transmission to the above stakeholder for the above stated purpose.

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Stakeholder Organisation	Job Title	Name	Signature	Date	Acceptance
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3. Acceptance by Crossrail:

compliance with their contractual obligations and does not constitute
 ds or materials developed or selected by the designer/supplier.

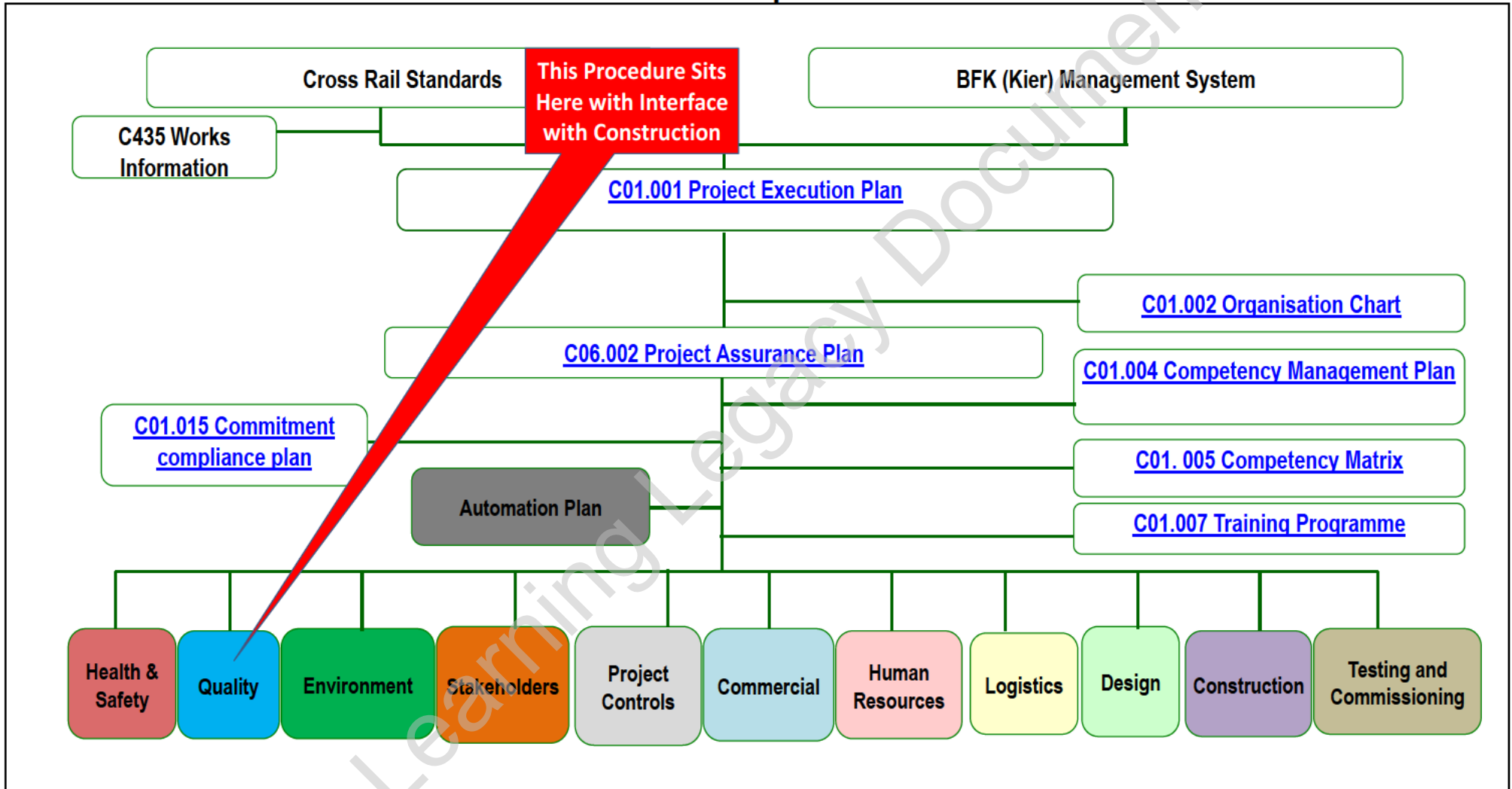
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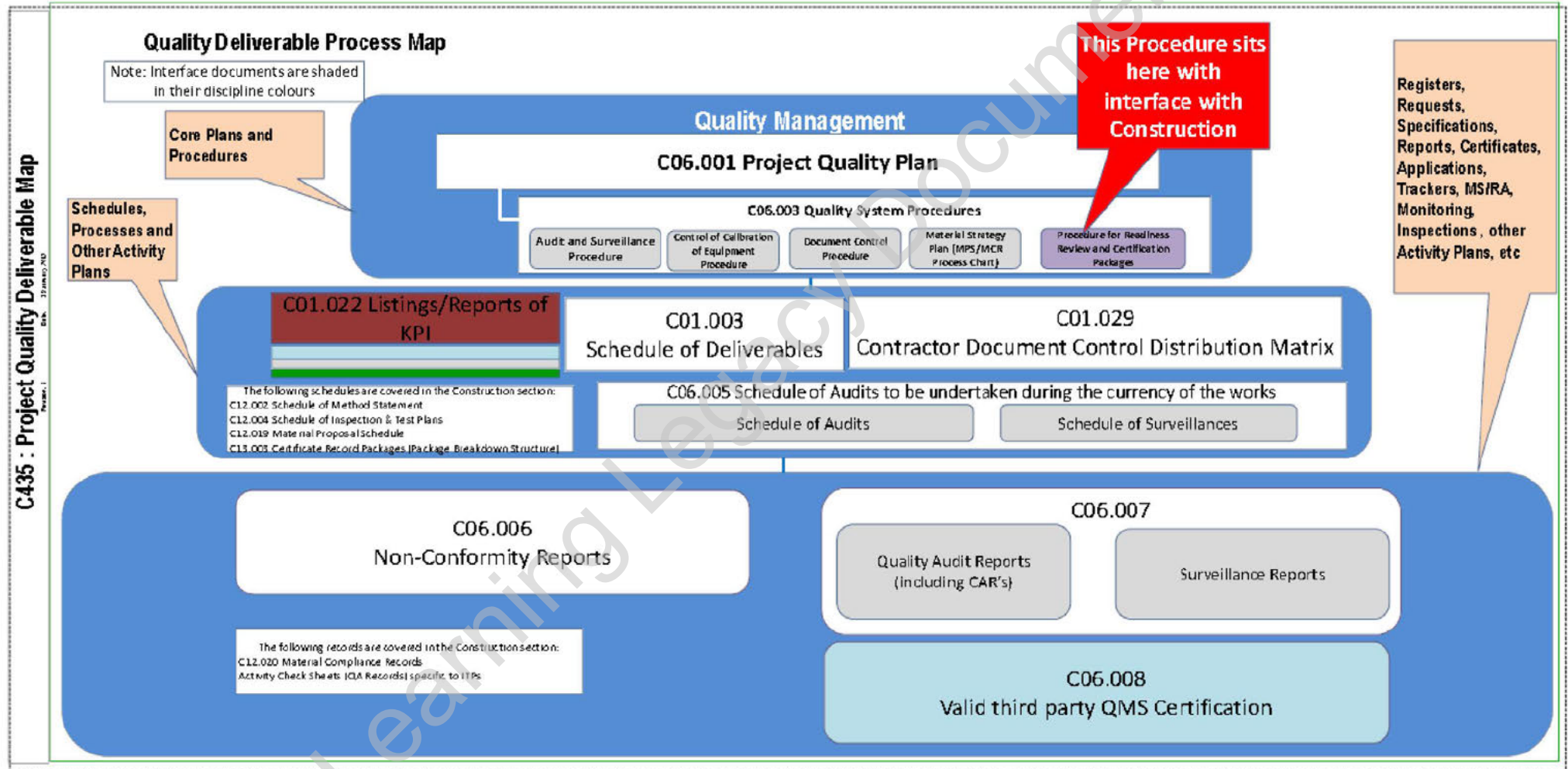
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1 Location of this Procedure on C435 Document Map



Location of Procedure in Quality Document Map



2 Purpose

The purpose of this quality system procedure is to outline how BFK C435 team will manage Readiness Reviews through to the Certification of Record Packages in line with the Works Information C435-XRL-V3-XWI-M123-50001 Part 13.6 and 20.4. This document provides detailed process and guidance on how BFK will plan deliverables, and their progressive update prior & during construction, and certification stages.

3 Scope

This procedure covers C435 Construction including subcontractor activities

4 Definitions

The following definitions are used in this procedure:

4.1 Readiness Review Deliverables Tracker

A schedule used to monitor a sub-construction package or a number of sub-construction packages.

4.2 Checklist - Pre start work documentation

A checksheet used to confirm the approval of relevant deliverables required to start an Activity or a number of Activities

4.3 Core Deliverables Tracker (CMDL)

A schedule used to monitor the Key Plans and Procedures on the C435 Project. The CMDL requirement is met with the combination of the Readiness review deliverables tracker (as in item 4.1 above) and the Core deliverables tracker

4.4 Construction/sub-Construction Certificate Listing

Construction/sub-construction certificate with a list of records associated for the works covered the certificate.

5 Responsibilities

5.1 Construction Manager

The Project Director and Section Manager's duties under this Procedure are delegated to the Construction Manager and includes following;

- He or She ensures Agents carry out Readiness Review and compilation of Certification Records in line with this C435 quality system procedure.
- Ensures there is adequate resource to manage this process
- Verifies that Agents are managing this process effectively
- Review and Approve Readiness Review Deliverables Trackers prior to submission to the CRL Project Manager.
- Review and Approves monthly certification document and tracker.
- Authorise Construction/sub-construction Certificates for completed packages
- Attends readiness review meetings where required
- Review and ensure the Whole Construction Certificate is either signed by Construction Manager or Project Director.
- Ensure that Project Health & Safety file is prepared and included in the Construction/Whole Construction Certificate.
- Ensure that Operational & Maintenance Manual for relevant works as required by works information is produced and approved by the Client.

5.2 Quality Manager

The Quality Manager's duties under this Procedure are as follows:

- Ensures the effectiveness of this Procedure as part of the Quality System Procedures
- Report summaries and progress in the Periodic Report.
- Review and sign sub-construction/construction certificate as reviewer
- Review and approve ITP Record compliance statement.
- Arrange Quality Surveillance to ensure that sub-contractor records are accurate, complete and progressive throughout the works.
- Attend Readiness Review presentations/meetings as necessary

5.3 Package Deliverable Manager

The Package Deliverable Manager's duties under this procedure shall include the following:

- Carry out compliance check under this procedure through review and submissions except those stated in this procedure.
- Ensure that Readiness Review Deliverable Trackers are issued to CRL Project Manager/PFE/Field Engineer quarterly.
- Verify that Readiness Review meetings are carried out prior to the start of each or a number of packages and status updated on the certification tracker.
- Review whole/sub/construction certificates and ensure timely submission on eB.
- Be the point of contact for CRL's Certification Engineer
- Arrange regular meetings between CRL Certification Engineer and BFK on Certifications OR discuss in weekly construction/Quality Meeting.
- Attend Readiness Review presentations/meetings as necessary
- Attend Internal weekly Readiness Review/ Certification Meetings as necessary
- Report Certification Progress to BFK Teams, Crossrail PFE and Certification Engineer formally every month and informally weekly via email.
- In the absence of the Quality Manager review and approve the sub-construction/construction certificate listing and ITP Records compliance statement.

- Raise any ineffectiveness of the readiness review and certification processes with the **Construction Manager** and **Quality Manager**
- Verify that the operational duties delegated to nominated staff to control this process are carried out effectively in achieving requirements stated in this procedure.
- Discuss any improvements and non-compliances formally with the **Construction Manager** and the **Quality Manager**.
- Provide guidance to the Construction Team and sub-contractor as necessary for Certification and readiness to review requirement.
- Attend Crossrail Certification Working Group Meeting/workshop.

5.4 Agent

The Agent's duties under this procedure shall include the following:

- Submit Readiness to review tracker for each sub-construction certificate package formally to CRL before the start of the works and every three months thereafter. For works taking less than 3 months tracker to be submitted before work starts/when the work is finished.
- Review weekly the Readiness Review Deliverables Tracker and discuss relevant activities under them with CRL **Construction Manager** at the Weekly Construction Meetings
- Appoint a competent person (a section deliverable engineer) to maintain the trackers
- Review and Approve Readiness Review Deliverables Trackers prior to submission to the CRL Project Manager/PFE/Field Engineer.
- Review the Readiness Review Deliverables Tracker quarterly for the Construction Manager's approval prior to submission to CRL Project Manager.
- Chairs Readiness Review meetings
- Prepares presentations for Readiness Review meetings
- Attend or delegate a team member who understands the discipline's activities to a readiness review and deliverables meeting. (This meeting may be part of the weekly Section Construction/Quality meeting)
- Appoint a competent person to ensure that sub-construction/construction certificate list is upto date with latest start/end program ID and dates and Certification Manager is informed of any update or changes.
- Appoint a competent person to ensure that sub-construction/construction certificates and associated records are reviewed internally within BFK, by CRL Field Engineer informally and issued to Crossrail PFE formally via eB prior to the planned issue date as per the latest Certification tracker C435-BFK-C-TSC-M123-50011.
- Liaise with the **Package Deliverable Manager** in the effectiveness of the Process.
- Put measures in place to improve any unsatisfactory occurrences
- Ensures that the operational duties delegated to nominated staff to control this process are carried out effectively in achieving requirements stated in this procedure.
- Discuss any improvements and non-compliances formally with the **Package Deliverable Manager** and the **Construction Manager**.
- Break discipline packages into sub-construction packages and issue breakdown for the Construction Manager's review and the Package Deliverable Manager's certification monitoring
- Update quarterly all construction trackers for submission to the CRL Project Manager
- Issue a statement to the **Construction Manager** and **Package Deliverables Manager** why a document or a number of planned documents could not be submitted over a Period
- Attend Third Party (ie. LU, NR, Thames Water etc) Interface meetings to align third party trackers with the readiness review deliverables tracker
- Where sub-contractor is responsible for a part or all of the works for a sub-construction/ Construction certification package, *ensure* that certification documentation process, Works Information requirement and responsibilities are *briefed* to the sub-contractor and progress is monitored throughout by **Agent** or **sub-Agent**. **Sub-Agent** shall arrange necessary briefings as and when required in consultation with **Package Deliverable Manager** to include Certification requirement, production of ITP records, redline/as-built drawings, sub-construction certificate

listing, Health & Safety File, Operation & Maintenance Manual etc. as required by the Works Information.

- Ensure that sub-contractor records are accurate, complete and progressive throughout the works and are submitted to BFK one week prior to the planned Crossrail submission date.
- Ensure that Section specific Health and Safety File is prepared and issued to Crossrail Project Manager for Acceptance and included in the relevant Sub/Construction Certificate.
- Ensure that Operational & Maintenance Manual for relevant works as required by works information is produced and approved by the Client.

5.5 Sub Agents

Sub Agents duties under this procedure include the following:

- Responsible to the **Agent** for his or her section readiness review deliverables trackers
- Carry out the responsibilities of the **Agent** in the absence of the Agent
- Ensure that sub-construction/construction certificate list is up to date with latest start/end program ID and dates and Certification Manager is informed of the changes at every period.
- Ensure that sub-construction/construction certificates and associated records/drawings are compiled, reviewed internally, by CRL Field Engineer informally and issued to Crossrail PFE formally via eB prior to the planned issue date as per the latest Certification tracker C435-BFK-C-TSC-M123-50011.
- Where sub-contractor is responsible for part or all of the works for a sub-construction/Construction certification package, **Sub-Agent** shall *arrange* necessary sub-contractor certification *briefing in consultation* with **Package Deliverable Manager** highlighting Works Information requirement, procedures and responsibilities including Certification requirement, production of ITP records, redline/as-built drawings, sub-construction certificate listing, Health & Safety File, Operation & Maintenance Manual etc. as required by the Works Information.

5.6 Section Deliverable Engineer

Section Deliverable Engineer's duties under this procedure shall be as follows:

- Update the Readiness Review Deliverables tracker, and the Certification Record Packages-Sub construction Certification Structure.
- Issue updated tracker to the **Agent** for his/her review and where instructed forward weekly to the CRL Field Engineer.
- Attend Third Party (ie. LU, NR, Thames Water etc) Interface meetings to align third party trackers with the readiness review and deliverables tracker by liaising with the Agent
- Liaise with CRL Field Engineer to ensure alignment and notifying the Agent of any changes
- Attend weekly Readiness Review meetings (These meetings could be part of the weekly Section Construction meeting)
- Attend Readiness Review meetings prior to the start of any package to identify CRL approved documents
- Make regular site visits to ensure construction records are covered in respective packages as identified on trackers
- Attend Section Construction meetings (including subcontractor's)
- Issue an updated and Construction Manager's approved trackers to the Package Deliverable Manager each Period (on the Friday of the BFK data end date – See CRL calendar)
- Carry out regular Records QA checks and advises the **Agent**
- Present a weekly KPI to the **Agent** on the progress of the sections documentation
- Prepare a Pre-Start Work Documentation checklist to ensure all deliverables are accepted in code 1, 2, 4, or where not requiring CRL response (ie. acceptance or Information coding) signed by required BFK reviewers and approvers before commencing works. Activities requiring a pre-start work documentation checklist shall be decided by the **Agent**.
- Review and respond to all CRL comments regarding the section's trackers

- Liaise with the **Agent** to re-plan late deliverables to ensure no delays to the works
- Follow-up with authors of due documents for submission
- Follow-up CRL late responses and prompt the CRL Field Engineer or Lead Reviewer

5.7 Sub-Contractor

Sub-Contractor's duties under this procedure shall be as follows:

- Ensure that readiness to review presentation is arranged for each element of works in accordance with this document and appendix-1. Ensure that readiness to review trackers are issued periodically (quarterly) to BFK and Crossrail for acceptance.
- Ensure that certification records, drawings as identified in the ITPs and Works Information including O&M manual and Health & Safety file are reviewed, completed on-time and available to the Agent/sub-Agent one week prior to the sub/construction certificate submission date as identified on the latest Project Certification Tracker C435-BFK-C-TSC-M123-50011.
- Ensure that sub-contractor key individual has received certification briefing and liaise with the Agent/sub-agent as necessary for the briefing.
- Ensure that all the deliverable and non-deliverable records are accurate, complete and progressive throughout the works and are available for inspection during Quality Surveillances.
- Assist BFK Agent/sub-agent in production of deliverable records and sub-construction certification, [Health & Safety File and Operational & Maintenance Manual](#).

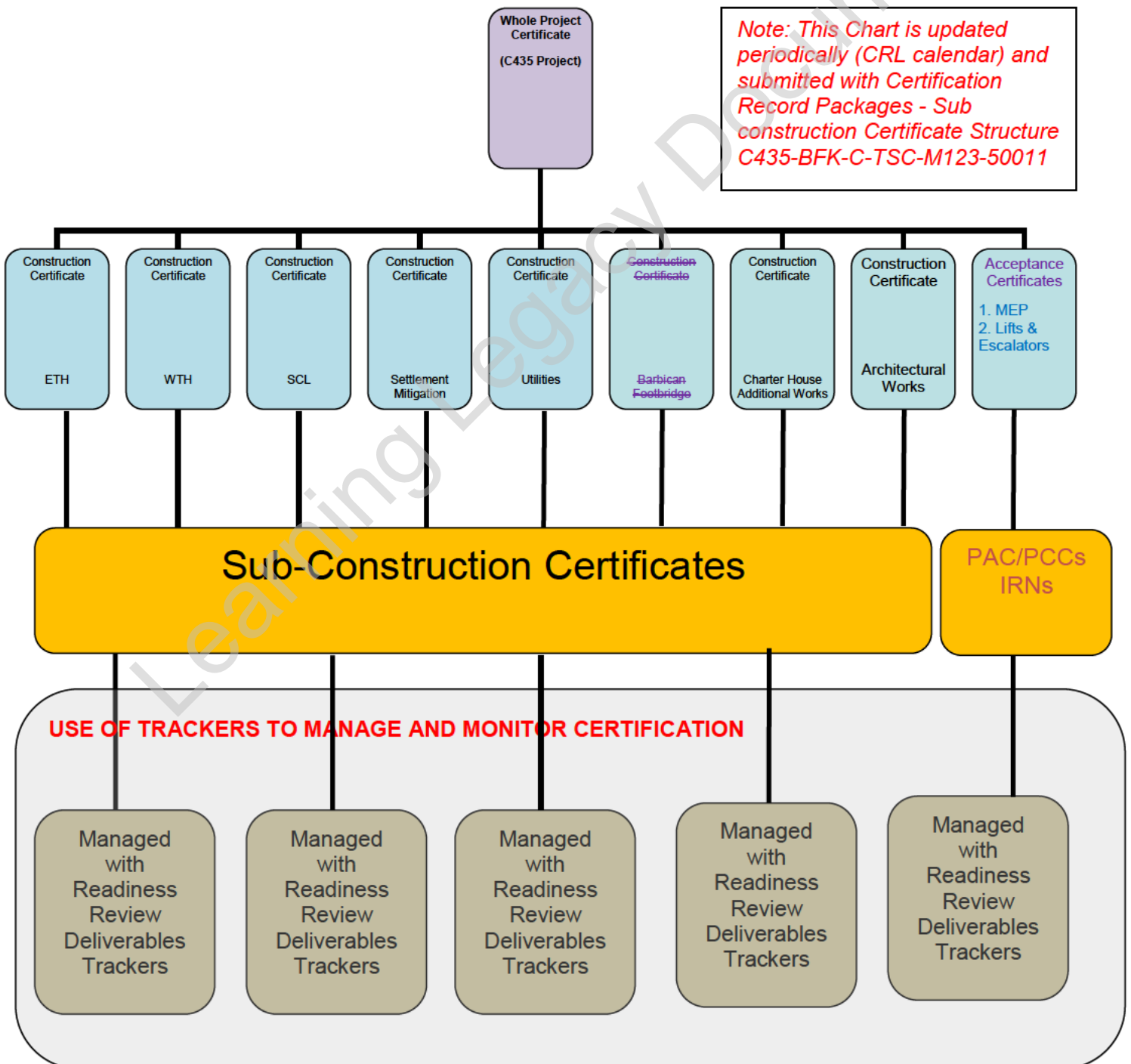
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6 Project Certification Structure

The following Certification Strategy chart shall be adopted by C435 Farringdon station. Details of the breakdown of the Certification structure is in document reference C435-BFK-C-TSC-M123-50011

The certification of all sub-construction Packages under a Construction Package will lead to a Construction Certificate. Likewise the certification of all Construction Certificates will lead to the award of a Whole Contract Completion Certificate.

As the Completion Certification of the Project is heavily dependent on the progressive award of Sub-construction certificates, the following sections in this procedure will outline C435 strategy of planning, and compilation of evidence towards the award of these certificates in line with the Works Information C435-XRL-V3-XWI-M123-50001 Part 13 and 20.



7 Planning Phase

The **Agent** is responsible for ensuring an effective planning towards a sub-construction certification is in place. Prior to undertaking the following steps towards this activity he/she shall ensure the sub-package is already identified in the Project 'Certification Record Packages – Sub Construction Certificate Structure' document with reference C435-BFK-C-TSC-M123-50011.

Prior to commencing works, a fully populated Readiness Review Tracker (RRT) is required, detailing foreseeable required documentation **including Construction deliverable packages** and shall also include the IFC Drawings, As-Built and Redline Drawings. The RRT is a live document and as such, where any changes occur the document is to be updated accordingly and discussed with the **CRL Field Engineer** and reported to the **Package Deliverables Manager** to ensure consistency of reporting to Crossrail.

7.1 Planning a New Sub-Construction Package/IRN Package (MEP)

The following planning and documentation process shall be implemented to ensure an effective managing and monitoring process. In addition, the **Agent** shall ensure that 18 weeks prior to starting a Sub-Package he/she shall take steps to implement the following process prior to the start of the Activity (Please refer Appendix 1). Where programme delays do not allow early planning as identified above, the **Agent** shall consult the **Construction Manager**, the **Package Deliverable Manager**, the **CRL Construction Manager** and the **Project Field Engineer** and notify them of the process delay.

7.1.1 Preparation prior to a Readiness Review Meeting

Four weeks prior to a Readiness Review meeting with CRL (unless constraints identified above), the **Agent** shall refer to the BFK readiness review checklist (See appendix 2) and extract any activity, processes, third party interfaces, risks, and other construction constraints in line with the Works Information, Materials & Workmanship Specification, and any contract drawings that he/she deem safety critical and their respective deliverables as required in specifications above for his/her production of a Readiness Review Presentation and the Readiness Review Deliverables tracker (see appendix 3 and 4).

The **Agent** shall involve the **Section Deliverable Engineer** in all processes leading to the Readiness review.

Please refer Appendix 2 for BFK Readiness Review checklist for the Agent's reference whilst preparing the Presentation and the Readiness Review Deliverables tracker for the Readiness Review meeting.

7.1.2 Populating a Readiness Review and Deliverables tracker for a Readiness Review meeting and its weekly update

The template in Appendix 3 shall be used by all construction disciplines for the maintenance of a Readiness Review Deliverables tracker except SCL that shall use the template in Appendix 4. The templates shall be modified from time to time to include any agreed improvement.

This Procedure will not be updated when any template identified in this procedure is modified. Modifications shall be notified to Agents and logged on the C435 EDMS BC for use, and submitted through eB as part of the 4 weekly submission.

The **Agent** shall ensure the following:

- All sections of the templates are populated
- Prior to the Readiness review meeting all key documents required to start the package are identified and planned on the Readiness Review Deliverables tracker.

- The **Agent** and the **Section Deliverable Engineer** shall update the tracker weekly to include all deliverables that are not on the tracker at the time of the update prior to start of an activity with the required planned date and eB number.
- Submission of all CRL acceptance document shall be identified and planned for first submission 45days prior to start of the activity requiring this document.
- Unless stated in the Contract specification, all Third Party document shall be identified and planned for first submission 60days prior to start of the activity requiring this document.
- All documents identified on the Readiness Review and Deliverables tracker for LU acceptance or information shall also be identified on the LU tracker through the raising of a Change Request Form by the **Agent** and reviewed by the **C435 Interface Manager**
- The **Agent** and the **Section Deliverable Engineer** shall ensure all Activities requiring the issue of a Letter of No Objection (LONO) are identified on both the LU and BFK trackers. A list of Letter of No Objections shall be identified on the readiness review deliverables tracker and monitored.

7.1.3 Arranging a Readiness Review Meeting

- The **Package Deliverable Manager** shall use the Certification Record Packages – Sub Construction Certification Structure tracker and identify all Readiness Review meetings for each Package.
- The **Agent** shall be responsible for arranging Readiness Review meetings as specified in Appendix 1 and below paragraph.

Readiness to review meetings shall be arranged at least **6 weeks** prior to works commencement and 12 weeks if work involves London Underground and/or Network Rail interface. There may be more than one Readiness to Review meetings required for Architectural sub-construction packages to include prototype and fabrication.

- Invites for Readiness Review meetings shall be sent to attendees a minimum of 2weeks prior to the meeting by the **Agent** (see Appendix 1)
- The **Agent** shall invite the following individuals as a minimum to the Readiness Review meeting

BFK Construction Manager

BFK Quality Manager

BFK Package Deliverable Manager

BFK Health and Safety Representative

BFK Environmental Representative

BFK Logistics Manager

BFK Engineering Manager

BFK Interface Manager

BFK Section Deliverable Engineer

CRL Project Field Engineer

CRL Field Engineer

CRL Construction Manager

CRL Site Manager

CRL Engineering Manager

- The **Agent** shall ensure an Agenda is sent as part of the invite. A Readiness Review meeting standard agenda shall include the following:

The Activity Location in the Package or Discipline

Scope of the works

Programme of the works

Outline Methodology of the works

Interfaces and Third party engagement

Risks identified and Persons assigned to follow up to meet programme

Opportunities identified

Deliverables - How they are managed and followed up

Any other business

- The **Agent** shall chair the Readiness Review meeting and ensure there is arrangement for minutes preparation

7.1.4 Using Readiness Review Process to check deliverables acceptances prior to commencement of an activity

As part of using the Readiness Review Deliverables tracker in managing and planning the works to ensure deliverables of an activity under a sub-construction package are all in code 1, 2, or 4 prior to starting an activity, the template in Appendix 5 'Pre-Start Work Documentation' checklist is used to prevent the occurrence of working without an approved document.

- The Pre-Start Work Documentation checklist shall not be recorded as a deliverable, and may only be included on the Readiness Review Deliverables tracker by the **Agent** for his/her own monitoring process.
- The document shall be maintained on site file for auditing purposes and where required loaded on the BFK EDMS (BC).

7.1.5 Agreeing Readiness Review and Deliverables Tracker with CRL

Two weeks after the readiness review meeting, the Agent or his/her delegate shall formally issue the Readiness Review and Deliverables Tracker to the relevant CRL Field Engineer for his/her agreement of the content of the tracker. Comments from this initial review shall be addressed and presented at the weekly BFK/CRL reviews.

Upon agreement of the RRT by the CRL Field Engineer, the RRT will be formally issued (within two weeks of the Readiness Review Meeting).

The list of Redline/As-Built drawings are to be agreed between the relevant BFK Agent and CRL Field Engineer prior to commencing works, ensuring that suitable drawings showing the final arrangement of permanent works will be provided to follow-on contractors and/or the end user. Identification of these drawings at an early stage will prove advantageous with regard to the review and subsequent acceptance of the drawings by CRL.

8 Construction Phase

The **Agent** is responsible for his/her sections effective compilation of deliverables towards a sub-construction certification. At this stage, it is expected that the **Agent** had identified all deliverables on the Readiness Review Deliverables tracker except records to be generated from Inspection and Test Plans. However, any deliverable that is not identified at this stage should be incorporated as necessary (See requirements in section 7.1.2 of this document and Appendix 1).

8.1 Inspection & Test Plan Records Compilation Process

BFK shall collate records, packaged, indexed and submitted in phased manner for each element, structure, activity, or section, in accordance with the Works Information and the Certification Records Packages – Sub Construction Certification Structure.

BFK strategy for ITP records submission shall be as follows:

- The **Agent** and his/her team shall identify individual construction records under the sub-construction package for progressive phase submission. Example under a Piling sub-package, smaller groups or entire construction records under a Piling ITP shall be collated for CRL acceptance
- The construction records package under an ITP shall have a document number and title.
- The construction records package under an ITP shall be logged on the readiness review deliverables tracker with a planned date
- The individual activity package's QA records (such as individual test records, checksheets etc) shall be checked by the **Agent** and his/her team to ensure the works have attained the required quality in line with the Works Information, fully signed off and loaded on the BFK EDMS (BC) progressively.
- Agent/Sub-Agent shall ensure that inspections and checking activities are carried out in accordance with approved process map/procedure C435-BFK-O4-GPD-M123-50016 Team Checking & Inspection Activities and nominated inspection personnel are identified in the document C435-BFK-O4-LRC-M123-50001 Nominated personnel for inspections.
- All construction records forming part of an ITP shall be loaded progressively on the BFK EDMS (BC) prior to submitting to the CRL Project Manager.
- The construction/ITP records submission shall include but not limited to the following and any additional records required under the Works Information and its associated Materials and Workmanship specifications:
 1. The activity or sub-activity title
 2. The relevant sub-construction package title
 3. Register of cube test, slump test, pull out tests etc
 4. Relevant ITP
 5. Test reports
 6. Checksheets, Installation records
 7. Records Compliance Statement (CRL Supplied Template) See appendix 14
 8. Health and Safety File information
 9. Operational & Maintenance Manual
 10. Any relevant records that is under CDML C12.000, C13.000, C14.000 that are not identified individually on the Readiness Review Deliverables Tracker

- Submission of these records shall be checked by the **BFK Sub-Agent /Agent** and Approved by the **BFK Agent/Construction Manager**
- The Construction/ ITP records will be in-formally submitted to CRL on hard copy two weeks prior to formal submission and will be submitted on eB for review along with Sub-Construction Certificate Listing formal submission.

8.2 Redline & As-built Drawings Requirement

The Agent and his/her team shall review the list of construction drawings on the Readiness Review Deliverables tracker identified during the Planning Phase to include any latest construction drawing that is not on the tracker – (See section 7.1.2 and Appendix 1). The Readiness Review Deliverables tracker's updated drawing list shall be used in conjunction with the designer's drawing register to complete the as-built redline for submission in line with the sequence below by the Agent.

Redline and As-built drawings minimum assurance matrix (C435-BFK-O-LRC-M123-50001) shall be used by Agents to determine which drawings shall be redlined and as-built. The matrix also highlights review requirement for each drawings types.

Redline drawings shall be updated progressively during the Construction Phase by a site/section engineer nominated by the Agent who have knowledge of the construction activity and access to all changes during the construction.

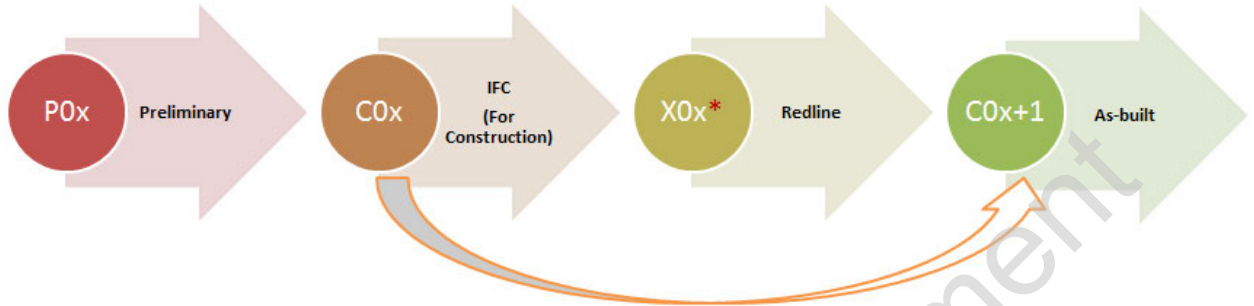
The redlines are to be progressively reviewed by the Sub agent and approved by the Agent on behalf of BFK. Additionally, once the redline drawings for a package of works have been completed, BFK shall informally submit the drawings to the relevant CRL Field Engineer who will arrange a redline drawing review meeting with the CRL CAD Team if required. If the drawings are acceptable to CRL they will be signed at the meeting accordingly.

Upon CRL approval the BFK Engineering team shall subsequently produce the DRIR for its submission to the CRL Project Manager through eB.

Redlines shall be prepared and submitted as follows to comply with Parts 13.3.6.2, 13.3.6.3, and 13.3.6.4 of the Works Information CRL1-XRL-V3-XWI-CR001-50035, CRL Management of Red Line Drawings Procedure CRL1-XRL-Z-GPD-CR001-50010. Further guidance on redline and as-built requirements can be found on C435-BFK-O4-MDA-M123-50002

8.2.1 Redline drawing revision

Redline drawings revision shall be generally in X0x format, where only one team is expected to work on the set of IFC drawings. Refer to the following typical drawing revision sequence.



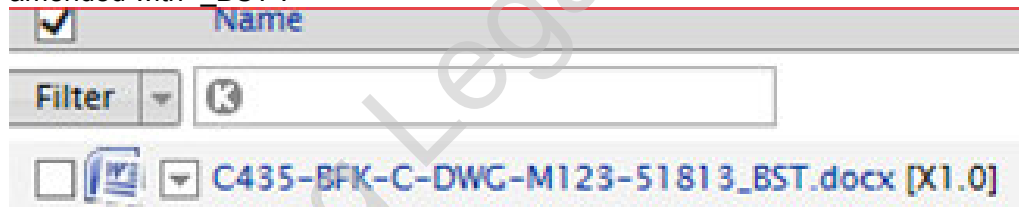
*Where multiple sub-contractors are expected to work on single IFC drawings, following redline revision number format shall be marked on the redline drawing;

Redline Revision Code

Rev “BST-X01” (Where “BST” to be sub-contractor specific unique code for Bourne sub-contractor). Sub-contractor code shall be confirmed with the Agent prior to works commencement.

Redline Drawing Revision on Business Collaborator

On completion of redline drawing, sub-contractor shall upload the drawing on BFK document management system (Business Collaborator BC) as following; (where drawing name has been amended with “_BST”).



Redline Drawing Revision on eB

BFK document control team shall then process above drawing on eB and update eB revision as following.

<input type="checkbox"/>	Number	Revision
<input type="checkbox"/>	C435-BFK-C-DWG-M123-51813	BST-X01

8.3 Significant Changes to Construction Method during Construction Phase

Where significant construction method and plan changes are identified, the Agent shall review the level of risk with the CRL Field Engineer and determine if a readiness review meeting is required. Where possible this can be accommodated in the sections weekly progress meeting in agreement with the CRL Field Engineer. A revised Readiness Review and Deliverables Tracker shall be issued formally to the CRL Field Engineer at the end of the Period after the meeting.

Learning Legacy Document

9 Sub-Construction Certification Preparation

The **Agent** is responsible for his/her sections Sub-Construction listing Certificate preparation once deliverables identified on the readiness review deliverables tracker are accepted in code 1, and 4; except specific project deliverables identified on the Core Deliverables tracker C435-BFK-Z9-TSC-M123-50017 such as the Construction Phase Plan, Environmental Management Plan, and Contractor's Quality Plan and the like.

Upon completion of the works, BFK will undertake a snagging exercise to identify any remedial works to be undertaken. Once these items have been addressed, the works are to be offered to CRL for a formal inspection – any further items identified during the CRL inspection are to be captured as Punchworks items.

9.1 Sub-Construction Certificate Listing and Review Statement Preparation

On completion of a sub-construction package, the **Agent** and his/her team takes the following steps to complete a Sub-Construction Certificate Listing:

- 1 week after completion of the works, the **Package Deliverable Manager** shall discuss in Certification meeting between the **Agent**, the **Section Deliverable Engineer**, the **CRL Field Engineer** and **CRL Completion Engineer** to review thoroughly any document required for inclusion on the Sub-Construction Certificate listing from the Readiness Review Deliverable tracker. The Readiness Review and Deliverables Tracker is maintained and updated until completion of construction where **the Agent** shall extract information from it for the completion of the Sub-Construction Certificate listing such that it is submitted to the CRL Project Manager within timescale specified in the Certification Package document C435-BFK-C-TSC-M123-50011.
- The **Agent** and **Section Deliverables Engineer** shall informally submit the Sub-Construction Certificate listing at least one week prior to the formal submission date to the **Package Deliverable Manager**, **CRL Completion Engineer** and **CRL Project Field Engineer** to ensure visibility of the progress and informal review with respect to the relevant package.
- The **Package Deliverable Manager** provides the status of all core documents to the **Agent** for inclusion on the Package listing
- The **Agent** and his/her team reviews the listings to ensure all deliverables and agreements in line with the Works Information are in code 1, and 4 (except documents as identified in section 9 above).
- The **Agent** takes steps to close specific snagging that are agreed to be completed before certification. BFK shall maintain internal snagging list for closeout prior to signing of packages, where the snags are not completed before completion of a sub construction certification, the agent shall log them on Punchworks and monitor their closure to meet the time scale identified on Punchwork. **The Agent** or **Sub-Agent** shall produce a schedule of inspections to identify Defects and shall raise snagging lists or outstanding works lists in Punchworks at appropriate inspection and acceptance stages to record work that has not been completed correctly or which is outstanding. **The Agent** shall monitor the progress of Punchworks items during the Weekly Quality Meetings.
- The **Agent** shall use the template provided by the CRL Project Manager in the Works Information Appendix 13C to prepare the Sub-construction Listing (These is also shown in Appendix 8 of this document).
- Each section of these forms shall be completed in full with relevant document numbers and their revisions as identified on the CRL Project Manager's EDMS eB. Where required on the sub-

construction listing, all eBPTR export sections shall be completed to identify all FCDs, RFIs, and NCRs relevant to the package.

- The Sub-Construction Certificate listing shall be submitted formally on eB to the CRL Project Manager by the date shown on the Certification Tracker. This is generally 4 to 5 weeks (most package 4/5 weeks). Some packages may require longer than 4 weeks, due to concrete strength certificates. **The Agent** shall update actual works completion date for each package in the weekly certification meeting and confirm planned submission dates with CRL PFE/FE and Certification Manager. **The Certification Manager** shall update certification tracker accordingly and issue informal copy weekly by email and formal copy on eB for CRL Project Manager Acceptance at every period. See current Certification Package document C435-BFK-C-TSC-M123-50011 for further detail.
- Sub-Construction Certificate shall be submitted under the cover of separate CCM, however, they are to be completed, signed and submitted concomitantly.
- Please refer to Appendix 8 for a typical Sub-Construction Certificate listing

9.1.1 Records for Parts of the Works where BFK is not responsible for the design

The **Agent** shall identify all redline or as-built drawings on the Readiness Review Deliverables tracker as in section 7.1.2 & 8.2 above

- Drawings categorised as IFC are to be marked up as redline drawings revision X
- Using Red lines for deletion on the mark-up
- Using Green lines for additions on the mark-up
- Using Blue line for notes and specials
- RFI, FCD, and or NCR reference numbers shall be referenced on drawings where changes are identified. Revision clouds shall be used to aid identification of changes
- All changes are fully dimensioned and sketched on drawings
- The above marked-up drawings are issued to the CRL Project Manager on eB by the construction team as Revision X01 by scanning the Revision X PDF copies and loading on eB with a Register and Issue Record (RIR) on a formal CCM for the CRL Project Manager's acceptance on eB. All redline drawings are submitted with a decal sticker (placed at the section of the drawing without covering the marked-up information). Where the sticker cannot be placed on the drawing an A4 CRL standard decal sheet is used.

9.1.2 Records for Parts of the Works Where BFK is responsible for the design

- The Agent shall identify all redline or as-built drawings on the Readiness Review Deliverables tracker as in section 7.1.2 & 8.2 above
- Drawings categorised as IFC are to be marked up as redline drawings revision X
- Using Red lines for deletion on the mark-up
- Using Green lines for additions on the mark-up
- Using Blue line for notes and specials
- RFI, FCD, and or NCR reference numbers shall be referenced on drawings where changes are identified. Revision clouds shall be used to aid identification of any changes
- All changes are fully dimensioned and sketched on drawings
- The above marked drawings are issued through eB as identified in section 8.2.1 above. The redline drawings are approved by the CRL Project Manager prior to signing off a construction certificate.
- On acceptance of the Revision X redline drawings by the CRL Project Manager the Engineering team shall proceed with the following action

- The Engineering team electronically re-drafts the drawings to Revision C (Contractual) and Status AB (as-built) to reflect the as-built (operational) on Projectwise. This shall be prepared in line with the CRL Project Manager's CAD standard numbers CR-STD-005, document reference CRL1-X-RL-O6-STD-CR001-00014, and CS1192 Collaborative Production or Architectural, Engineering and Construction – Code of Practice
- All changes from Technical Queries, RFIs, FCDs, and NCRs shall be incorporated in the Revision C status AB drawings and references removed

9.1.3 Drawings not required to be As-built

The following categories of drawings are not required to be recorded as-built and are not to be included on the Readiness Review and Deliverable Trackers for Certification except where the element of permanent works is also shown on the same drawings or exceptions also stated below. For further details refer to the redline As-built minimum assurance matrix referenced in section 8.2

- Temporary works drawings, except where the temporary works are required for interim maintenance, operational or safety purposes
- Drawings showing temporary traffic management schemes including temporary road closures except where such drawings are required for interim maintenance operational or safety purpose.
- Construction access except where such access is also permanent works access
- Site clearance and demolition, except where a structure is partially demolished, or there is a requirement to inform a follow on contractor of specific risks not removed by demolition or site clearance
- Systemwide stage works drawings leading up to the final arrangement
- RIBA stage E and Preliminary Design drawings to be further developed by Contractor.
- However, construction drawings developed from these must be As-built

9.2 Additional Changes (PMI, NCR, FCD)

Any additional changes agreed/instructed via contact communications (PMI, NCR, FCD) shall be captured in relevant sub-construction/IRN packages. Where works are already complete and relevant sub-construction package is already accepted, this shall be revised to include additional works/documentation.

Agent shall ensure that list of PMI, NCR, FCD shall be reviewed every month for inclusion in to on-going, future packages or already accepted packages.

Refer to the Appendix-13 for process flow-chart and additional guidance.

10 Certification Phase

The Project Certification is categorised in three stages as identified in Part 13.4.3 of the Works Information C435-XRL-V3-XWI-M123-50001 and section 6 of this document. The completion certificates and responsibilities are outlined in the following sections below:

10.1 Sub-Construction Certificate

- The **Agent** is responsible for preparing the Sub-Construction Certificate Listing
- The document shall make reference to the following:
 1. Contract number
 2. CMDL code
 3. Applicable Design Certificate number
 4. Contractor name
 5. The sub-construction certificate eB number
 6. Sub-Construction Certificate eB number
 7. Name and location of the sub-package
 8. Description of the precise limit covered by the sub-package scope
- The Sub-Construction Certificate shall be reviewed and only be signed on behalf of BFK by either the **Project Director**, the **Project Manager**, the **Construction Manager**, the **Deputy Project Manager** or the **Agent**
- Dependent upon the severity/importance of the Punchworks items, the Project Field Engineer may defer the signing of the Sub Construction Certificate, pending the satisfactory completion of any identified remedial works. Relevant Punchworks reference shall be included on the Sub-Construction Certificate Part 1 and Part 2.
- The Sub-Construction Certificate shall be submitted to the CRL Project Manager within dates identified on the Certification Record Package –Sub Construction Certificate Structure ref C435-BFK-C-TSC-M123-50011
- A typical Sub-Construction Certificate template is shown in Appendix 8.

10.2 Construction Certificate

- The **Agent** is responsible for preparing the Construction Certificate after obtaining all the Sub-Constructions, except works that have interface with other Construction that cannot be completed at the time of this Certificate
- The **Agent** prepares the Construction Certificate Part 1 and completes all sections
- The **Agent** prepares a Part 2 of the Construction Certificate Listing, where applicable, 2 weeks before the signing of the Construction Certificate and follows meeting process in section 9.1.
- At Construction Certification stage, Part 2 listing is only required for deliverables that falls outside the sub-construction package certifications.
- The document shall make reference to the following:
 1. Contract number
 2. CMDL code

3. Applicable Design Certificate number
 4. Contractor name
 5. The Construction certificate eB number
 6. The Part 2 of the Construction Certificate Listing - For works that falls outside the sub-construction package certificates. If this is not applicable simply insert 'N/A'
 7. Name and location of the Construction Package
 8. Description of the precise limit covered by the Construction package scope
- The Construction Certificate shall be reviewed and only be signed on behalf of BFK by either the **Project Director**, the **Project Manager** or the **Construction Manager**
 - The Certificate shall be submitted to the CRL Project Manager within a week of completion of all Punchworks items and sub-Construction certificates sign-off.
 - A typical Construction Certificate template is shown in Appendix 9

10.3 Whole Contract Construction Certificate

- The **Construction Manager** is responsible for preparing the Whole Contract Construction Certificate after obtaining all the Construction certificates
- The **Construction Manager** prepares the Whole Contract Construction Certificate and completes all sections of the certificate.
- The **Construction Manager** prepares a Whole Contract Construction Listing (where applicable) 2weeks before the submission of this Certificate and follows meeting process in section 9.1 involving all **Agents** and Key Subcontractors.
- At Whole Contract Construction Certification stage, Certificate listing Part 2 is only required for deliverables that falls outside Sub-construction and Construction certificates.
- The document shall make reference to the following:
 1. Contract number
 2. CMDL code
 3. Applicable Design Certificate number
 4. Contractor name
 5. The Whole Contract Construction certificate eB number
 6. The Whole Contract Construction Listing Part 2 - For works that falls outside the Construction certificates. If this is not applicable simply insert 'N/A'
 7. Name and location of the Project
 8. Description of the precise limit covered by the Project scope
- The Whole Contract Construction Certificate shall be reviewed and only be signed on behalf of BFK by the **Project Director**. The **Project Director** may choose to delegate this power to the **Section Manager**. In this case the **Section Manager** shall sign on behalf of BFK
- The Certificate shall be submitted within the programmed date.
- A typical Whole Contract Construction Certificate template is shown in Appendix 10

11 Summary Process of Deliverable Planning and Certification

The below Appendix 11 shows a summarised process from planning stage to certification of the BFK process in line with the Works Information C435-XRL-V3-XWI-M123-50001 (in particular for sub-construction packages)

12 Reporting of Deliverables and Certification

Agents shall be responsible for reporting their section deliverables progress to the **Package Deliverable Manager** for a Project Report.

The **Package Deliverable Manager** shall be responsible for reporting the general status of deliverables of the Project.

- Progress of deliverables shall be included in the Periodic KPI dashboard report to CRL and discussed at the Periodic Quality Focus Meeting
- The **Package Deliverable Manager** shall attend the Periodic QFM and discuss deliverables status, including potential delays
- The Readiness Review Deliverables tracker shall identify the status of each deliverable under a package. This is submitted to the CRL Project Manager in line with Part 13 of the Works Information C435-XRL-V3-XWI-M123-50001 each Period.
- Progress of Certification Packages are tracked on the respective discipline trackers in the 'Certificate Record Packages – Sub-Construction Certification Structure' with document number C435-BFK-C-TSC-M123-50011 issued to the CRL Project Manager each Period
- The Certification tracker shall include the dates for readiness review meetings for the different packages, including meetings covering manufacturing and prototype fabrication for Architectural works.

13 Asset Management and Asset Tagging

New assets will be registered in the appropriate fields within the CRL Asset Information Management System (AIMS). Team BFK Asset Manager will manage the process as described in volume 2B section 13.5, of the Works Information.

14 MEP Readiness Review and Certification Procedure

Refer to the MEP specific eB document C435-BFK-O4-GPS-M123-50005, which includes MEP Readiness Review and Certification Procedure and relevant certificates and readiness review trackers.

List of MEP Certificates

- Acceptance Certificate Template
- Partial Acceptance Certificate Template
- Pre-Commissioning Certificate Template
- Installation Release Notice Template
- MEP & System wide Certification Package Listing Template

15 Lifts & Escalator Readiness Review and Certification

Readiness to review process described in this document will be followed for Lifts & Escalator works.

Certificate templates provided in communication **C434-PMI-00740** shall be used for works certification. Refer to Project Certification document **C435-BFK-C-TSC-M123-50011** for details of Lifts & Escalator IRN/PCC/PAC & ACs.

Readiness to review tracker for Lifts & Escalator will be same as MEP works. Refer to eB document **C435-BFK-M1-TSC-M123-50013** for latest document.

16 Health and Safety File

Health & Safety File shall be produced for each interim handovers and Project Health & Safety file will be produced after completion of all works at the end of the project. Crossrail template (**CR-XRL-Z7-ZTM- CR001-50001**) to be used for production of H&S File and to be issued in accordance with the clarification provided in **C435-RFI-004077**.

Agent is responsible for preparing section specific Health & Safety File at the end of the sectional works and Project Manager shall be responsible to ensure that produce Project Health & Safety File at the end of works.

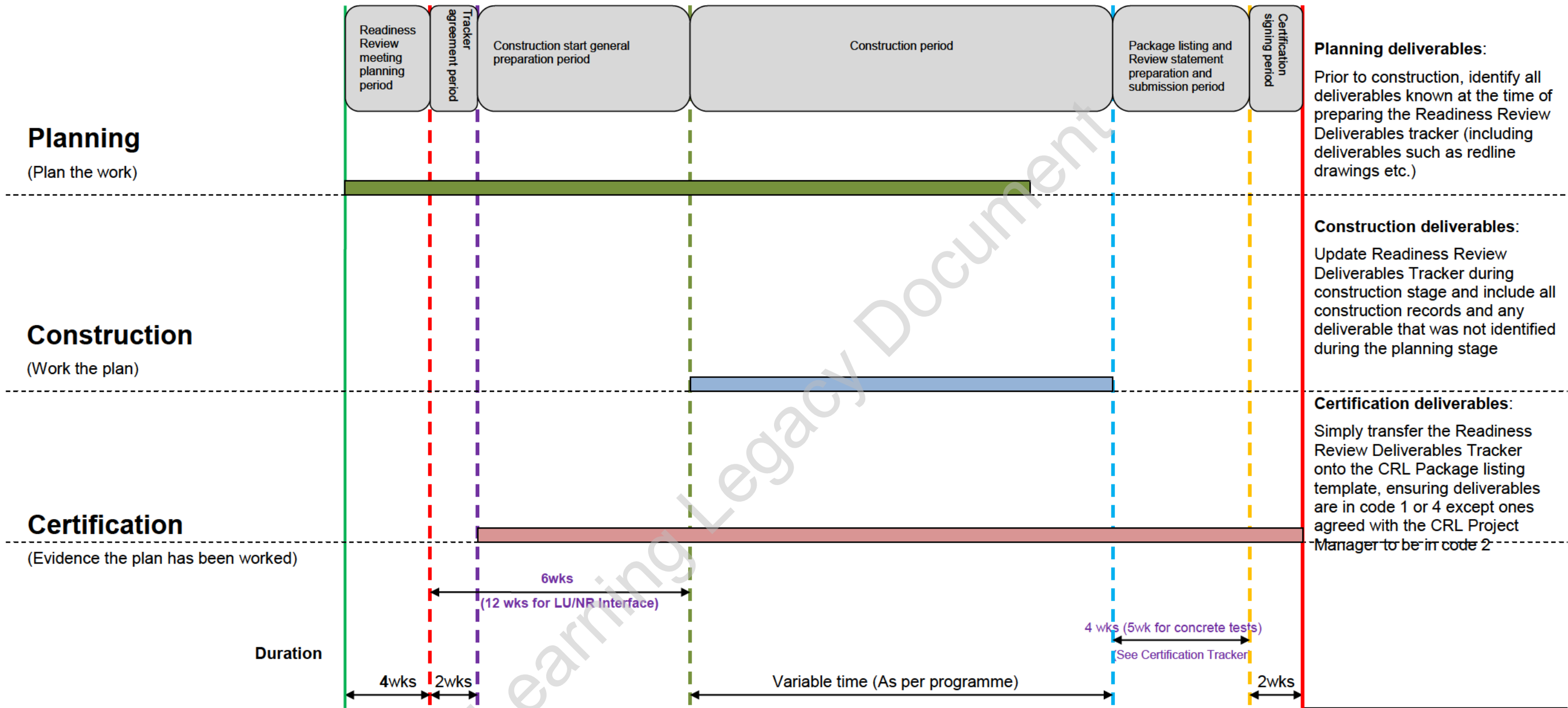
17 Operational & Maintenance Manual

Construction Manager and Agent for relevant section of works (Civils, Architectural, MEP etc.) shall produce Operational & Maintenance Manual in accordance with the instruction, guidance and templates provided in the communication **C435-PMI-00695**. Agent shall also ensure that relevant sub-contractors have been briefed and aware of O&M requirement and required input.

18 Appendices

Learning Legacy Document

18.1 Appendix 1 – Readiness Review and Certification Planning Overview



KEY

	Planning bar		Readiness Review Meeting		Construction works finish
	Construction bar		Readiness Review Deliverables Tracker agreed		Formal submission of Package Listing to CRL
	Certification bar		Construction works start		CRL sign off Review statement and Certificate
	Readiness Review planning starts				



18.3 Appendix 3 – Typical Template for Readiness Review and Deliverables Tracker (For use by all disciplines except SCL – See Appendix 4 for SCL Template)

Contract: C435 Farringdon Station C435 Utilities PMI 009 & 031 - Diversion of 14" and 30" Watermains on Farringdon Road Deliverable Tracker C435-BFK-U-TSC-M123-50001 rev 3 CMDL Code: C01.003 updated on: 18/01/2013																			
Discipline name		Programme		COMPLETED FOR		Code 1		Completed by		submission & overdue		Required within 3 to 14 days		14 days to submission		Not due - Over			
Utilities				Deliverables - Utilities															
Sub-package name		Start date	Finish date			Code 2		Reviewed by								Verified for certification by:			
PMI 009 & 031 - Diversion of 14" and 30" Watermains on Farringdon Road		16/08/2012	26/01/2013													Package Deliverable Manager			
Checklist eB reference no :		Risk level key				Code 3		Verified to commence works/ certification:								Approved for Certification by:			
/NA		Low Medium High						N/A at this stage								Project Manager			
#REF!						Submitted awaiting response													
Item No	Description of action	Applicable Sub Package (Please select)	At what stage will this be actioned (select)	Risk level (Select)	CMDL No.	eB Document Reference No.	Current code if applicable (select from dropdown)	BFK owner	CRL Owner if applicable	Third party if applicable (Select from dropdown lists) - if not in list please identify in comments section	CRL review (state requirement for document submission e.g. CRL-Acceptance or CRL-Information)	BFK Planned submission on date	Due date colour code	BFK Submission Actual date	BFK document required date from CRL (Preferred CRL response date)	CRL Planned response date (Contractual)	CRL Actual response date	CRL Return date colour code (if returned then coded against return date - showing deviation)	Comments
4.10	Consents																		
	Discharge consent for manhole TQ31815789		Prior to the works	Medium		C435-BFK-T1-QAP-M123-50014	submitted awaiting response		CM		CRL-Acceptance			11/10/2012					
	Section 61 with Camden (PMI 009 - Trial hole at north and south pit locations)		Prior to the works	Medium	C07.004	C435-BFK-T1-NOX-M123-50007	code 4		CM		CRL-Acceptance								
	Section 61 with Camden (PMI 031 - Phase 2 Works)		Prior to the works	Low	C07.004	C435-BFK-T1-NOX-M123-50001	code 4		CM		CRL-Information			30/08/2012			05/09/2012		Valid from 17/08/2012 to 03/11/2012
	Extension of Section 61 with Camden (Phase 2 works)		Prior to the works	Low					CM		CRL - Information								Valid till 21/12/2012
	Section 61 with Islington Delivery Corridor Alterations		Prior to the works	Medium	C07.004	C435-BFK-T1-NOX-M123-50002	code 4		CM		CRL-Information			24/08/2012			05/09/2012		Valid from 16/08/2012 to 02/10/2012
5.11	ITPs																		
	Trial Holes in Farringdon Road		Prior to the works	Medium	C12.005	C435-BFK-C-ITP-M123-50023 Rev 3.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance			19/07/2012			31/07/2012		
	Rider Main Installation		Prior to the works	Low	C12.005	C435-BFK-C-ITP-M123-50024 Rev 6.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance			06/12/2012			13/12/2012		
	Sinking Pits and Installation of valves		Prior to the works	Medium	C12.005	C435-BFK-C-ITP-M123-50025 Rev 3.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance			29/11/2012			05/12/2012		
	Road Widening beyond the delivery corridor		Prior to the works	Medium	C12.005	C435-BFK-C-ITP-M123-50026 Rev 1.0	code 1		PFE	Not Applicable	CRL-Acceptance			08/08/2012			22/08/2012		
6.1	Temporary and Permanent works design																		
	Temporary Works Design Check Certificate - Trial Holes in Farringdon Road		Prior to the works	Medium	C09.007	C435-BFK-C-CER-M123-50010 Rev 1.0	code 2				CRL-Acceptance			19/07/2012			31/07/2012		
	Temporary Works Design Check Certificate - Utilities - N & S Pit Excavation and RC Thrust Block		Prior to the works	Medium	C09.007	C435-BFK-C-CER-M123-50038 Rev 1.0	code 1				CRL-Acceptance			03/10/2012			22/10/2012		
	Design Brief No. 502 - Reinstatement of Trial Holes in Farringdon Road		Prior to the works	Low	C09.003	C435-BFK-C-RGN-M123-50040 Rev 1.0	code 4		EM		CRL-Information			24/07/2012			07/08/2012		
	Temporary Works Design Brief - Utilities - Installation of valves in south pit on Farringdon Road		Prior to the works	High	C09.003	C435-BFK-C-RGN-M123-50050 Rev 1.0	code 4		EM	TWUL - For Information	CRL-Information			10/08/2012			17/08/2012		
	Design Brief No. 506 - Utilities -Pipe Bridge over Greville Street		Prior to the works	Low	C09.003	C435-BFK-C-RGN-M123-50052 Rev 1.0	code 4		EM	TWUL - For Information	CRL-Information			10/08/2012			22/08/2012		
	Design Brief No. 507 - Utilities - Concrete Vehicle Barrier on Farringdon Road		Prior to the works	Medium	C09.003	C435-BFK-C-RGN-M123-50051 Rev 1.0	code 4		EM		CRL-Information			14/08/2012			22/08/2012		
	Temporary Works Design Package -Utilities - Concrete Vehicle Barrier for Farringdon Road		Prior to the works	Medium	C09.006	C435-BFK-C-RGN-M123-50072 Rev 1.0					TBC								
	Temporary Works Design Package -Utilities - Diversion of 4 inch Main Farringdon Road		Prior to the works	Medium	C09.006	C435-BFK-C-RGN-M123-50073 Rev 1.0	code 1		EM	TWUL - For Information	CRL-Acceptance			02/10/2012			18/10/2012		
	Temporary Works Design Package - Utilities - N & S Pit Excavation and RC Thrust Block		Prior to the works	Medium	C09.006	C435-BFK-C-RGN-M123-50079 Rev 1.0	code 1				CRL-Acceptance			03/10/2012			22/10/2012		
	Temporary Works Design Package - Utilities - 2 No. Rider Mains along Farringdon Road		Prior to the works	Low	C09.006	C435-BFK-U-RGN-M123-50005 Rev 2.0	code 1		EM	TWUL - For Information	CRL-Acceptance			04/12/2012			09/12/2012		
	Temporary Works Design Package - Utilities - Installation of linestops within north and south pits on Farringdon Road		Prior to the works	High	C09.006	C435-BFK-U-RGN-M123-50007 Rev 1.0	code 3		EM	TWUL - For Information	CRL-Acceptance	24/10/2012		25/10/2012			23/11/2012		This Design Package has been superseded by C435-BFK-U-RGN-M123-50005 Rev 2.0
	Temporary Works Design Package - Utilities - Rider main thrust block design		Prior to the works	Medium	C09.006	C435-BFK-U-RGN-M123-50010	code 1		EM		CRL-Acceptance			16/11/2012			29/11/2012		
	Temporary Works Design Package - Utilities - Timber sheet / Cradles design check		Prior to the works	Medium	C09.006	C435-BFK-U-RGN-M123-50011	code 1		EM		CRL-Acceptance			14/12/2012			08/01/2013		
	Temporary Works Design Package - Utilities - Ramp Shutter and Reinforced Design Check		Prior to the works	Medium	C09.006	C435-BFK-U-RGN-M123-50012	code 4		EM		CRL-Acceptance			09/11/2012			23/11/2012		
	Temporary Works Design Package - Utilities - Raised Rider Main Cradle Design		Prior to the works	Medium	C09.006	C435-BFK-U-RGN-M123-50013 Rev 1.0	code 3		EM		CRL -Acceptance			14/11/2012			23/11/2012		
	Action Plan																		
8.3	Method statement / risk assessment																		
	Trial Hole no. 1 for 14" and 30" Mains		Prior to the works	Medium	C12.003	C435-BFK-C-GMS-M123-50088 Rev 2.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance			13/07/2012			18/07/2012		
	Trial Hole no. 2 for 14" and 30" Mains		Prior to the works	Medium	C12.003	C435-BFK-C-GMS-M123-50089 Rev 3.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance			20/07/2012			24/07/2012		
	Construction of 2 No. PE/DI Rider Mains off the 14" and 30" Thames Water Mains on Farringdon Road		Prior to the works	Medium	C12.003	C435-BFK-C-GMS-M123-50146 Rev 3.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance	03/10/2012		01/10/2012			23/10/2012		Previously Code 2 Accepted. Updated to Code 1 following receipt of the signed WCRF
	14" and 30" Water main works of sinking pits and trial holes to locate the branch mains, installation of line stops and valves on Thames Water mains Farringdon Road		Prior to the works	High	C12.003	C435-BFK-C-GMS-M123-50147 Rev 2.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance			18/08/2012			28/09/2012		
	Farringdon Road widening of carriageway on southbound lane into the delivery corridor		Prior to the works	Medium	C12.003	C435-BFK-C-GMS-M123-50150 Rev 2.0	code 1		PFE		CRL-Acceptance			16/08/2012			28/09/2012		
	Construction of Concrete In-situ crash barriers to facilitate the excavation of the southern pit on Farringdon Road		Prior to the works	Medium	C12.003	C435-BFK-C-GMS-M123-50155 Rev 3.0	code 4		PFE		CRL-Acceptance			14/09/2012			26/10/2012		
	Installation/Removal of Traffic Management on Farringdon Road		Prior to the works	Medium	C12.003	C435-BFK-C-GMS-M123-50160 Rev 1.0	code 1		PFE		CRL-Acceptance			16/10/2012			18/10/2012		
	Diversion of 4" Main around southern pit on Farringdon Road		Prior to the works	Medium	C12.003	C435-BFK-C-GMS-M123-50164 Rev 2.0	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance			21/09/2012			03/10/2012		
	Decommissioning of 8" Cast Iron Watermain around southern pit on Farringdon Road		Prior to the works	Medium	C12.003	C435-BFK-U-GMS-M123-50002	code 1		PFE	TWUL - For Acceptance	CRL-Acceptance	04/10/2012		10/10/2012			23/10/2012		Previously Code 2 Accepted. Updated to Code 1 following receipt of the signed WCRF



18.5 Appendix 5 – Checklist for Pre-start work documentation

	C435 FARRINGDON MAIN STATION	
CHECKLIST - PRE START WORK DOCUMENTATION		

DATE:		REFERENCE:	
LOCATION:		SECTION:	
WORK TYPE:		WORK AREA:	
ORIGINATOR COMPANY:		HAND BACK PACKAGE:	
ORIGINATOR:		READINESS REVIEW TRACKER:	

CODE 1 Works to proceed / New revision or FCD needed	CODE 2 Address comments but work can proceed	CODE 3 Works must not start	CODE 4 For information
--	--	---------------------------------------	----------------------------------

DOCUMENT TITLE	eB NUMBER	CRL RESPONSE
----------------	-----------	--------------

RRT Checked? (RRT – Readiness Review Tracker) Name: Signed/Date:	Document Checked? Name: Signed/Date:	Verified Checked? (Third party person) Name: Signed/Date:
--	---	--

18.6 APPENDIX 6 – Typical Package Listing Template

NOT USED

Learning Legacy Document

18.7 Appendix 7 – Typical Package Review Statement Template

NOT USED

Learning Legacy Document

18.8 Appendix 8 – Typical Sub-Construction Certificate Template

 CROSSRAIL CENTRAL SECTION SUB-CONSTRUCTION CERTIFICATE This is Part 1 of 2		
CONTRACTOR STATEMENT		
Contract Number: C435	Contract Deliverable No: C13.006	
Contract Name:	Sub-Construction Cert	
Design Cert:	Package Listing & Review Statement: see Part 2 of 2 of this document	
Contractor Name: BFK JV		
Name and location of element of construction:		
Precise limits covered by this certificate:		
<p>We certify that the named element of construction, within the limits stated above, has been constructed so as to comply with the relevant Works Information and contract specific data. The setting out, materials and workmanship used, including testing, are in compliance with the requirements of the Contract and the certified design as reflected in the marked up drawings referenced on the attached Part 2 of 2 of this document, the Package Listing, and that the element of works are complete, subject to the completion of the Works stated on the Consolidated Outstanding Works List as detailed in Section 4A of Part 2 of this document. [Strikeout and mark N/A if Not Applicable.]</p>		
Signed		For and on behalf of:
Name	Position	Date
Supervisor's Statement		
I have checked Parts 1 and 2 of this Sub-Construction Certificate and have identified the following Defects in accordance with the Outstanding Works List identified in Section 4A of Part 2 of this document. [Strikeout if Not Applicable]		
Signed Name		Date.
Project Manager's Statement		
I confirm acceptance of this Sub-Construction Certificate subject to the Outstanding Works List as noted above. [Strikeout if Not Applicable]		
Signed Name		Date.

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CRL RESTRICTED

Template: CRL-XRL-04-ZTM-CR001-50003 Rev 1.0

(Supersedes CRL-XRL-Z-ZTM-CR001-50003 Rev 1.0)

Related Procedure: CRL-XRL-04-GPD-CR001-50003

NOTE: Contractor is to mark as 'Not Applicable' those Document Requirements which do not apply to this Package

1 of 3

CROSSRAIL CENTRAL SECTION SUB/CONSTRUCTION CERTIFICATE Part 2 of 2 or INSTALLATION RELEASE NOTE Part 2 of 2 PACKAGE LISTING			
Contract/Deliverable No. C13.004		SUB CONSTRUCTION NO: C300-BFK-O-CER-CRT00_3T005-0114 Rev 1.0 Part 2 of 2	
Name and location of element of construction: Lord Hill Bridge Utility Works Indirect			
Precise limits covered by this package (including temporary works in place): Thames Water permanent water Main works			
THE FOLLOWING DOCUMENTS/RECORDS ARE SPECIFIC TO THESE WORKS		DO NOT DELETE "NOT APPLICABLE" ITEMS	
1	REFERENCE DOCUMENTS	Document Title	Document Number
			Revision
	Whole Contract Construction Certificate		Add ACCC number
	Construction Certificate		Add CC Number
2	ASSURANCE RECORDS SPECIFIC TO THIS PACKAGE		
	Audit Reports		Not Applicable
	Surveillance Reports		Not Applicable
	Certificates of Competency of Personnel Performing Work Affecting Conformity to Requirements (where specified)		Not Applicable
	Valid Subcontractor QMS Certification - ISO 9001:2008		Not Applicable
3	DESIGN RECORDS		
	Deliverable Design Records relevant to the Construction Certificate Package required by: Part 13 of the Works Information Volume 2B		
	Register and Issue Record (RIR)		Not Applicable
	Conceptual Design Statement		Not Applicable
	Design Certificate		Not Applicable
	Designer CDM Risk Register		Not Applicable
	Geotechnical Design or Technical Reports		Not Applicable
	Surveys		Not Applicable
	Detailed Design		Not Applicable
	Design Specifications		Not Applicable
	Electronically Re-Drawn Operational drawing (not Revision Control AB/A/B/C) (B) Originator)		Not Applicable
4	CONSTRUCTION/INSTALLATION RECORDS		
	Deliverable Construction Records relevant to the Construction Certificate Package required by: Part 13 of the Works Information Volume 2B		
4A	General Construction Records		
	Working Drawings (Issued for Construction Only)		Not Applicable
	Material Proposal Schedule		Not Applicable
	Material Compliance Records/Approvals		Not Applicable
	Factory Acceptance Test Reports		Not Applicable
	Inspection & Test Plans		Not Applicable
	ITP Deliverable Record Package		Not Applicable
	For example: Piling Records, Embedded Walling, Records, pre & post pour concrete, test reports, waterproofing, compacts for grouting etc.		
	Construction Method Statements		Not Applicable
	Short Notice Change (SNC)		
	Change Request notes (PMs)		Not Applicable
	Requests for Information (RFIs)		Not Applicable
	Field Change Documents (FCDs)		Not Applicable
	Non-Conformance Reports and Notification of Defects (NCRs)		Not Applicable
	Technical Reports		Not Applicable
	Settlement / Damage Reports (Building or Structural)		Not Applicable
	Archaeological and Historical Building Reports		Not Applicable
	Surveys; (e.g. CCTV Surveys)		Not Applicable
	Third Party Required Records / Certificate of Acceptance		
	Highways Agency		Not Applicable
	Local Authority		Not Applicable
	Canal		Not Applicable
	Electricity		Not Applicable
	Water		Not Applicable
	Telecomms		Not Applicable
	DLR		Not Applicable
	LUL		Not Applicable
	LO		
	TfL / RfL		Not Applicable


NOTE: Contractor is to mark as 'Not Applicable' those Document Requirements which do not apply to this Package

2 of 3


CROSSRAIL CENTRAL SECTION SUB*/CONSTRUCTION CERTIFICATE Part 2 of 2 or INSTALLATION RELEASE NOTE Part 2 of 2 PACKAGE LISTING			
Contract Deliverable No. C13.006		SUB CONSTRUCTION NO: C300-BFK-O-CER-CRT00_ST005-50114 Rev 1.0 Part 2 of 2	
Name and location of element of construction: Lord Hill Bridge Utility Works Indirect			
Precise limits covered by this package (including temporary works left in place): Thames Water permanent water Main works			
	THE FOLLOWING DOCUMENTS/RECORDS ARE SPECIFIC TO THESE WORKS	DO NOT DELETE "NOT APPLICABLE" ITEMS	
	Document Title	Document Number	Revision
	NR	Not Applicable	
	Building Controls (CRL or Other)	Not Applicable	
	Revision X0# Red Line Marked up Drawings	Not Applicable	
	Hand-over Punchwork / Defects Lists	Not Applicable	
	Health and Safety File as defined in the Works Information	Not Applicable	
4B	Tunnelling Records:		
	Tunnelling /TBM ITP Deliverable Records Package	Not Applicable	
	Tunnel Alignment and Whiggle Survey	Not Applicable	
	Ring Grouting Records	Not Applicable	
	Pre-cast Concrete Segment Casting Records	Not Applicable	
	Pre-Cast Concrete Ring Placement Records	Not Applicable	
	Pre-Cast Concrete Ring Core Records	Not Applicable	
	Pre-Cast Concrete Ring Repair Records	Not Applicable	
	Invert Bar Reinforcement Records	Not Applicable	
	Spheroidal Graphite Iron Segment Casting Records	Not Applicable	
	Spheroidal Graphite Iron Ring Placement Records	Not Applicable	
	Spheroidal Graphite Iron Segment Repair Records	Not Applicable	
4C	Sprayed Concrete Lining (SCL) Records:		
	SCL Construction Management Plan	Not Applicable	
	SCL Key Personnel and Nozzlemen	Not Applicable	
	SCL Installation of Instrumentation Records	Not Applicable	
	SCL RESS	Not Applicable	
	SCL Action Plan	Not Applicable	
	SCL ITP Deliverable Records Package: Primary Lining	Not Applicable	
	SCL ITP Deliverable Records Package: Secondary Lining (including waterproofing)	Not Applicable	
5	TESTING AND COMMISSIONING RECORDS		
	Deliverable T&C Records relevant to the Installation Release Notice required by: Part 28 of the Works Information Volume 2B		
	Testing and Commissioning Plan (incl commissioning test descriptions & test data sheets)	Not Applicable	
	Commissioning Logic (Com Lot definitions)	Not Applicable	
	Individual Inspection & Test Plan(s)		
	Intermediate Static Test Report(s) [T&C deliverables, to incl a copy of the relevant test plan]	Not Applicable	
	Calibration Certification	Not Applicable	
	Engineering Safety justifications	Not Applicable	
	Commissioning Lot Asset Register	Not Applicable	
	Any other?		
6	OPERATION AND MAINTENANCE DELIVERABLE RECORDS		
	Deliverable O&M Records relevant to the Construction Certificate Package required by: Part 13 of the Works Information Volume 2B		
	Maintenance Records - Plant & Equipment	Not Applicable	
	Operation & Maintenance Manuals	Not Applicable	
	Records of Modifications made to the Completed Infrastructure or Installed Equipment	Not Applicable	
	Records of Failures, Faults and Incidents	Not Applicable	
7	OUTSTANDING DOCUMENTATION & RECORDS		
	Documents or records that have not been submitted or accepted but do not prevent the sign-off of the package. Add to Punchworks.		

NOTE: Contractor is to mark as 'Not Applicable' those Document Requirements which do not apply to this Package

3 of 3

 CROSSRAIL CENTRAL SECTION SUB*/CONSTRUCTION CERTIFICATE Part 2 of 2 or INSTALLATION RELEASE NOTE Part 2 of 2 PACKAGE LISTING		
Contract Deliverable No. C13.006		SUB CONSTRUCTION NO: C300-BFK-O-CER-CRT00_ST005-50114 Rev 1.0 Part 2 of 2
Name and location of element of construction: Lord Hill Bridge Utility Works Indirect		
Precise limits covered by this package (including temporary works left in place): Thames Water permanent water Main works		
THE FOLLOWING DOCUMENTS/RECORDS ARE SPECIFIC TO THESE WORKS		DO NOT DELETE "NOT APPLICABLE" ITEMS
Document Title	Document Number	Revision
CONTRACTOR STATEMENT		
<p>The documents listed in this Sub*/Construction Certificate / Installation Release Notice Package Listing are the Records and Record Drawings relating to the element of Construction / Installation described above.</p> <p>I / We certify that the Records and Record Drawings listed above in this Certificate Package exist and have been input into, and are accessible via, the Project EDMS. All Contractor documents have been checked to assure that a relevant and competent Contractor employee or sub-contractor employee has signed each document.</p>		
Certificate Package Prepared by:		Checked by:
Name:		Name:
Contractor Quality Manager:		
Name:		Date:
Supervisor's Statement		
I have checked this Certificate Package Listing and the Contractor Review Statement above, and have identified Outstanding Works / Defects in accordance with the Punchwork References as noted in Section 4 above [strikeout and note NOT APPLICABLE if necc]		
Signed CRL First Reviewer:		
Name:		Date:

18.9 Appendix 9 – Typical Construction Certificate Template

	<p>CROSSRAIL CENTRAL SECTION CONSTRUCTION CERTIFICATE This is Part 1 of 2 [strikeout if N/A]</p>
---	---

CONTRACTOR STATEMENT			
Contract Number: CXXX		Contract Deliverable No: CXX.XXX	
Contract Name:		Construction Certificate: CXXX-SKC-A-CER-CR001-XXXXX Rev X.X	
Contractor Name:		Package Listing & Review Statement: see Part 2 of 2 of this document. [Strikeout and mark N/A if not applicable]	
Design Cert CXXX-SKC-S-CER-CR001-XXXXX Rev X.X			
Name and location of element of construction:			
Precise limits covered by this certificate:			
We certify that the named element of construction, within the limits stated above, has been constructed so as to comply with the relevant Works Information and contract specific data. The setting out, materials and workmanship used, including testing, are in compliance with the requirements of the Contract and the certified design as reflected in the marked up drawings referenced on the attached Part 2 of 2 of this document, the Package Listing, and that the element of works are complete subject to the completion of the Works stated on the Consolidated Outstanding Works List as identified in Section 4A of Part 2 of this document. [Strikeout and mark N/A if Not Applicable.]			
Records, in addition to those included in the Package Contents Listing for this Construction Certificate, are included within the following Sub-Construction Certificates Packages which, together, comprise the construction records for the element of construction described above.			
*gC330-S-KC-A-CER-CR001-50010 Rev 1			
Signed		For and on behalf of:	
Name	Position	Date	


Supervisor's Statement	
I have checked Parts 1 and 2 [if applicable] of this Construction Certificate and have identified the following Defects in accordance with the Outstanding Works List identified in Section 4A of Part 2 of this document. [Strikeout and mark N/A if Not Applicable.]	
Signed	Date.
Name	

Project Manager's Statement	
I Confirm acceptance of this Construction Certificate subject to the Outstanding Works List as noted above. [Strikeout and mark N/A if Not Applicable]	
Signed	Date.
Name	

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For Part 2 Package Listing see Appendix 8

18.10 Appendix 10 – Typical Whole Contract Construction Certificate Template

	<p>CROSSRAIL CENTRAL SECTION WHOLE CONTRACT CONSTRUCTION CERTIFICATE Part 1 of 2</p>
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CONTRACTOR STATEMENT			
Contract Number: CXXX		Contract Deliverable No. CXX.XXX	
Contract Name:		Whole Contract Construction Cert CXXX-SKC-A-CER-CR001-XXXXX Rev X.X	
Contractor Name:		Package Listing & Review Statement: see Part 2 of 2 of this document	
Design Cert: Cxxx-SKC-S-CER-CR001-XXXXX Rev X.X			
Location of Contract:			
Precise limits covered by this certificate:			
<p>In accordance with this Whole Contract Construction Certificate, we certify that we have completed all of the works as stated in the Works Information subject to the completion of the Defects in the Consolidated Outstanding Works List [eB Document Number] and attached to this document</p> <p>We certify that the Records included in the above referenced Part 2 of this document, the Package Listing, together with those in the following Construction Certificates Packages complete the Construction Records for the Contract referred to above.</p>			
C330-SKC-A-CER-CR001-50013 Rev 0.1			
Signed:		For and on behalf of:	
Name:	Position:	Date:	

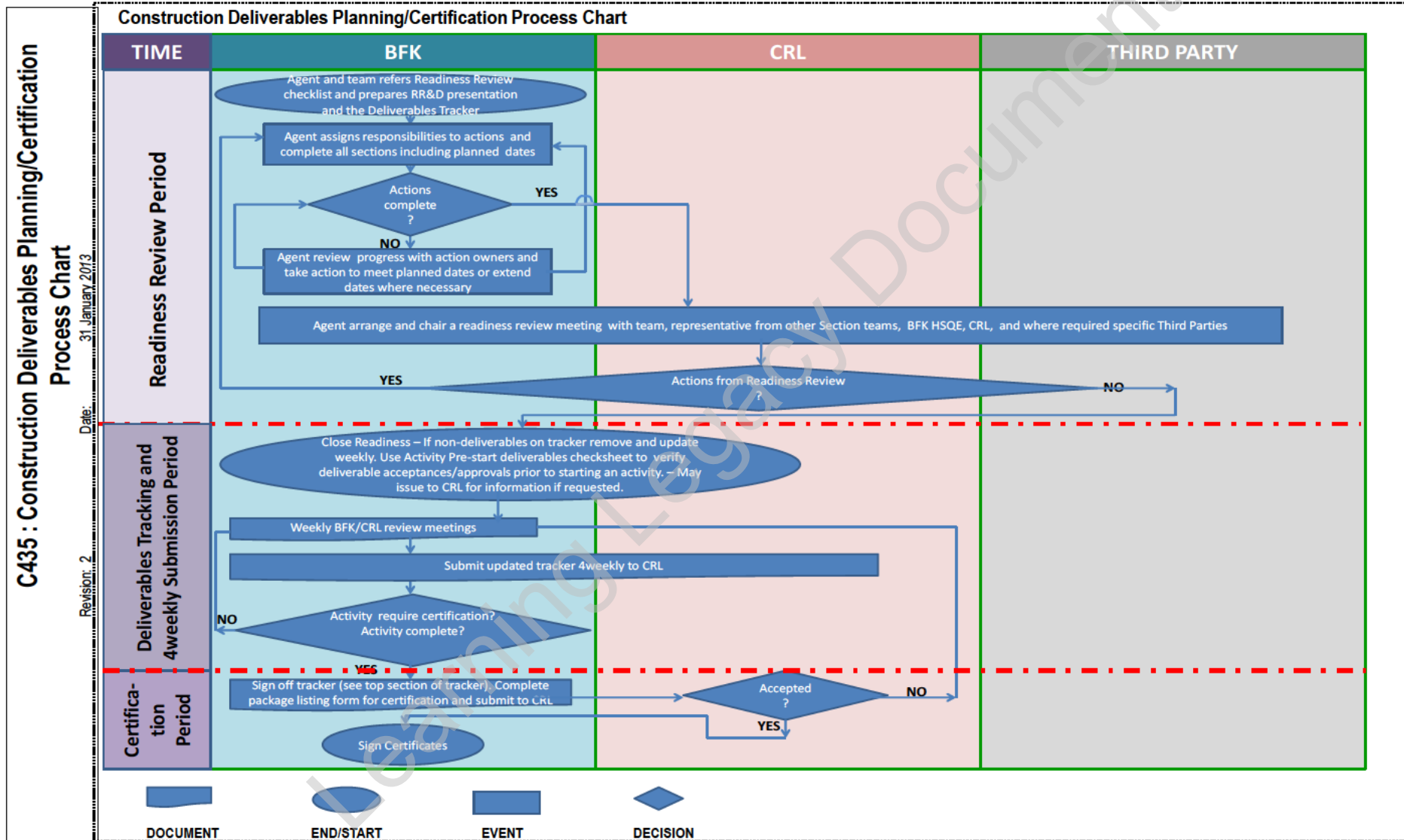
Supervisor's Statement
<p>I have checked this Whole Contract Construction Certificate and have identified the following Defects in accordance with the</p> <p>Consolidated Outstanding Works List eB reference number:..... (and attached to this document)</p> <p>Signed _____ Date _____</p> <p>Name _____</p>

Project Manager's Statement
<p>I confirm acceptance of this Whole Contract Construction Certificate subject to the Consolidated Outstanding Works List as noted above</p> <p>Signed _____</p> <p>Name _____ Date _____</p>

For Part 2 Package Listing see Appendix 8

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18.11 Appendix 11 – Summarised Process of Deliverables Planning and Certification



18.12 Appendix 12 – MEP Readiness to Review, Certification Procedure and Readiness to Review templates

Refer to the eB document

C435-BFK-O4-GPS-M123-50005

For MEP Readiness to Review, Certification Procedure & relevant certificate templates

Learning Legacy Document

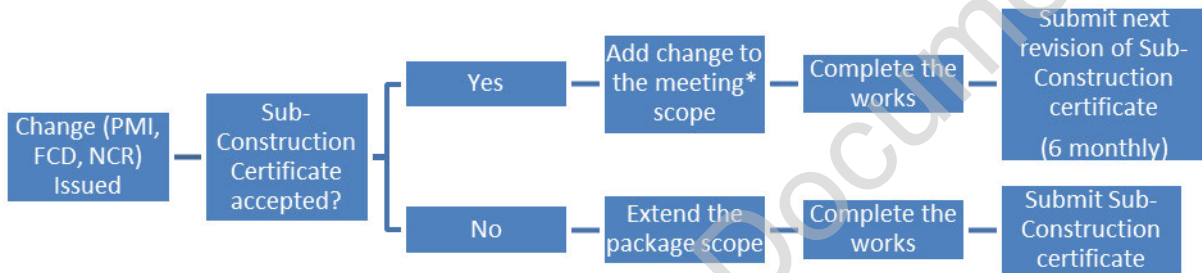
18.13 Appendix – 13 Process for Managing Changes as Part of Certification of the Works

1. Introduction:

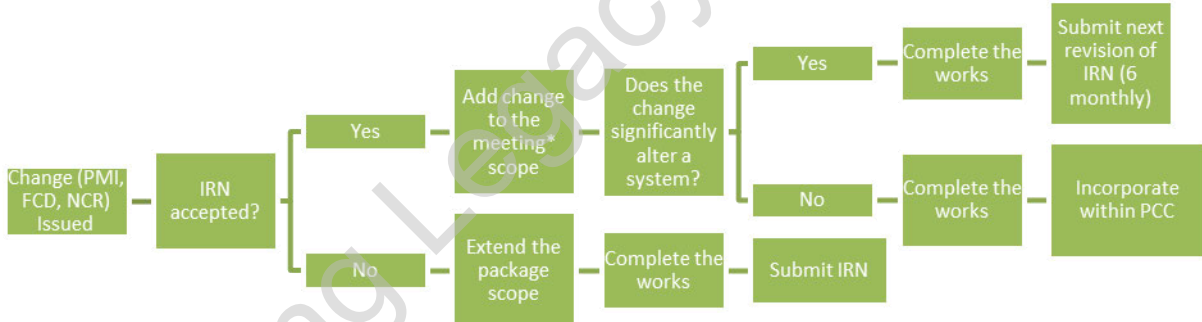
As a result of the ongoing and anticipated future change it is necessary to capture all additional works that change to the Works Information (PMI, NCR, FCD) in our Sub-Construction certificates. This ensures that we look ahead to proactively ensure that **ALL** completed works have been certified and are adequately documented.

2. Process flow-chart:

Civil/Architecture



MEP



3. * PMI, NCR, FCD meeting once a month (after QFM).

Attendees:

Sub-Agents/Agents, NGB Package Managers, NGB Certification Manager, Quality Manager, Handover Manager, CRL Field Engineers

Input:

- Quality Manager – one week before the meeting sends out list of PMIs, NCRs and FCDs for the previous period (eB report).
- Sub-Agent/Agent, NGB Package Manager - adds the location, package listing document reference (from C435 Certification Schedule) and colour codes the list:
 - GREEN** – open, live package
 - YELLOW** – not relevant to any of the packages
 - RED** – closed package

Output:

Create list of RED changes (PMIs, NCRs, FCDs) for this and past periods, and track until they are included in the relevant Sub-Construction Certificates.


Every six months the next revision of the relevant certificate e.g. (Sub-construction certificate, IRN, PCC, etc.) is submitted with all the agreed changes (PMIs, NCRs, FCDs) documented therein, to keep all information in a single source.

Note that as well as the above changes to the relevant certificate, the following will also typically need to be updated/included as part of this submission:

1. New/updated red line drawings
2. Additional check sheets/ITP Records
3. Additional Punchworks items

Learning Legacy Document

18.14 Appendix-14 Record Package Compliance Statement



RECORD PACKAGE COMPLIANCE STATEMENT

Associated ITP	
ITP Title:	
ITP No.:	
Brief description of the ITP and location of the works	

Review			
Date of due diligence review:			
Are there any outstanding items which affect the completeness of the package?	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50px;">Yes</td> <td style="width: 50px;">No</td> </tr> </table>	Yes	No
Yes	No		
Outstanding Works List No.	Not Applicable?		
Details of documents excluded from this package: None?			

Statement of Compliance	
In accordance with the Works Information Vol. 2B Parts 13 & 20 this package has been reviewed and demonstrates that the supporting documents and details have been satisfactorily completed in compliance with the associated ITP and Contract requirements;	
Subcontractor (if applicable); reviewed and checked by:	
Name:	Signature:
Job Title:	
Date Prepared:	



BFK JV; reviewed and checked by:					
Name:	Signature:				
Tick applicable position:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 100px;">Quality Manager</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Construction Manager</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Quality Manager	<input type="checkbox"/>	Construction Manager	<input type="checkbox"/>
Quality Manager	<input type="checkbox"/>				
Construction Manager	<input type="checkbox"/>				
Date Prepared:					